


74 Observing Organisms



How do scientists know how introduced species affect ecosystems? Natural environments are constantly changing. How do you figure out what changes are due to the introduced organism and what changes are due to other factors? **Ecology** is the study of relationships between living organisms and the physical environment. Ecologists begin by studying organisms in the natural environment. They often supplement this information with laboratory investigations.



What can you discover about an organism in a laboratory investigation?



MATERIALS

For each pair of students

- 1 *Lumbriculus variegatus*, or similar test organism
- 1 150-mm petri dish
- 1 piece of filter paper
- 1 pipet
- 1 small paintbrush
- 1 hand lens (optional)
- spring water (or treated tap water)

For the Extension

For the class

- Lumbriculus variegatus*, or similar test organisms
- pipets
- microscopes
- microscope slides

PROCEDURE

- 1. Discuss with your group some guidelines for studying animals in the classroom. Record your ideas in your science notebook. Be prepared to share these ideas with the class.
- 2. Draw a table in your science notebook like the one below, and record your observations and inferences about the blackworm. Not every observation will result in an inference.




Blackworm	
Observations	Inferences

3. Pour 1–2 cm of water into the bottom of the petri dish.
4. Use the pipet to add a single blackworm from the culture to your petri dish. (Do not pick a blackworm that is dark and has a lighter section at one or both ends; this worm has recently been broken and is regenerating itself.)
5. Carefully observe the blackworm. Then use the brush to gently investigate this organism.
6. Record your observations. How much can you find out about a blackworm? Without injuring the worm, explore its behavior. For example, watch to see:
 - How does it move?
 - Does it respond differently to different actions on various parts of its body, such as touching?
 - Can you identify which end is the head?
 - What else do you observe?
7. Place the filter paper in the lid of the petri dish. Use the pipet and a few drops of water to completely moisten the filter paper.
8. Use the pipet to move the blackworm onto the filter paper.
9. Observe the blackworm's movement on this surface. How does its movement here compare with its movement in water? Record your observations.
10. Return your blackworm to the class culture before cleaning up.

EXTENSION

Place a blackworm on a microscope slide. Add one drop of water. (If there is too much water on the slide, use a pipet to suction off the excess water.) Observe the worm under low and medium power. What internal structures can you see?

ANALYSIS

-  1. Review your notes on how the blackworm responded to touch. How could these reactions help it to survive in the wild?
-  2. Based on what you now know about blackworms, in what type of environment do you think blackworms live? Explain your reasoning.
-  3. As an ecologist, you are asked to write an entry in an encyclopedia on the blackworm, *Lumbriculus variegatus*. Use your laboratory notes to write a paragraph describing the blackworm.
4.
 - a. A student reading your encyclopedia entry thinks that you should include more information about blackworms. What questions do you think he or she might have after reading your entry?
 - b. How might you get the information necessary to answer his or her questions?